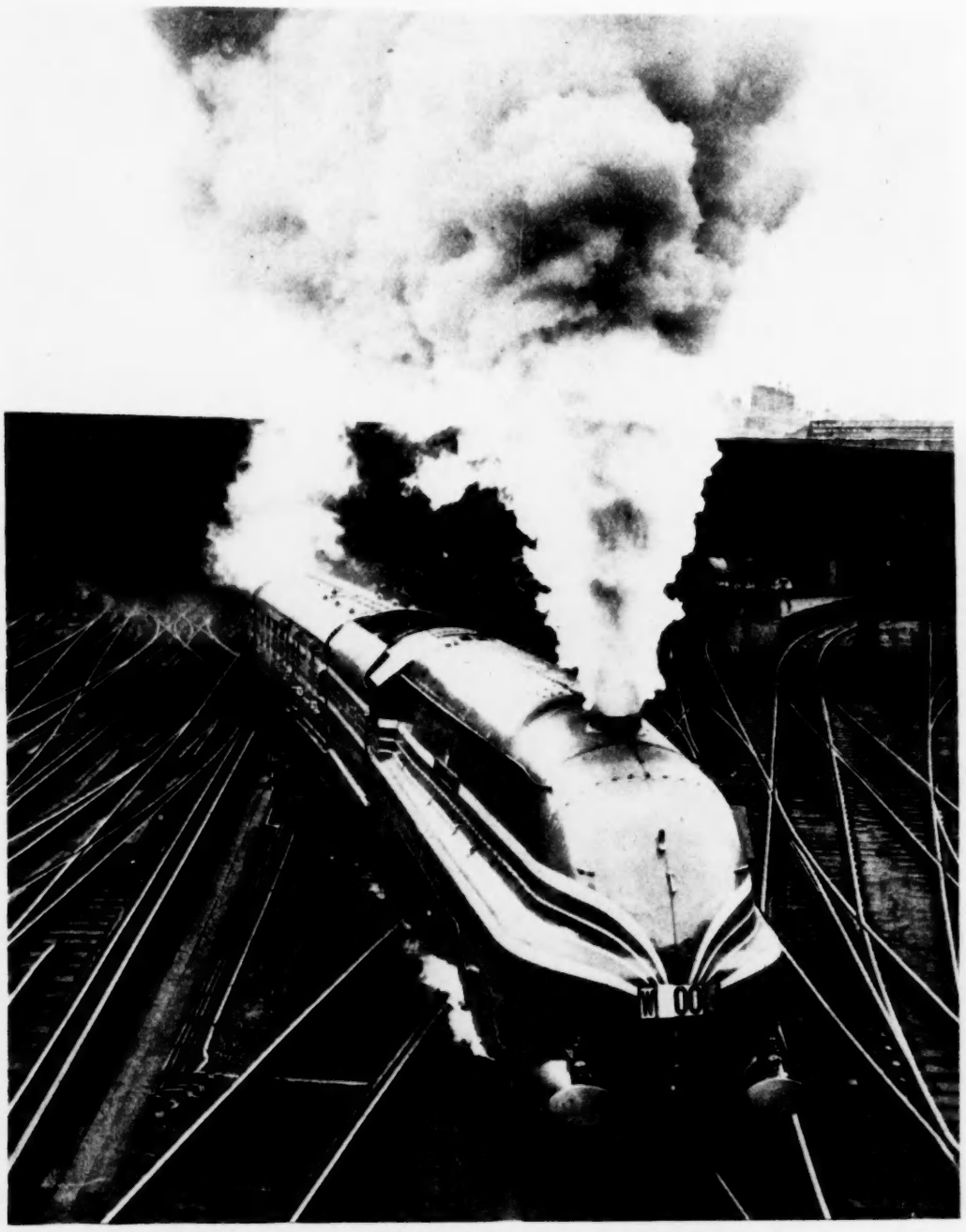


L. M. S.

L.M.S. Supplement

A Great Heritage

The London Midland and Scottish Railway is a fusion into one of 364 original transport systems, and it is the largest commercially-operated undertaking in the world. The genius of Stephenson was the touch-stone upon which this vast organisation was originally founded; the placing of the steam locomotive on metal rails created the greatest revolution in transport that has ever taken place in history; and we can truly take pride in the fact that this was Britain's gift to the world.

Not only did railways originate in this country, but we were the first to develop them. The railways now forming the L M S exercised a strong creative influence on social and industrial development during the last century. They soon obtained a pre-eminent position for comfort, speed and general efficiency for the handling of traffic, and to-day, welded as they are into one organisation, the efficiency of the undertaking has kept in step with progress in the civilisation which we enjoy.

The Minister of Transport stated in the House of Commons as recently as June 17th of this year: "Any Minister of Transport must speedily be impressed by the vital character of the railways as the transport core of the country and the high degree of efficiency and enterprise with which the railways are operated."

The building up of the railways has not been without trials and difficulties. Opposition based on the interests of individuals or on the lack of foresight on the part of authorities placed heavy additional burdens on the lines when they were promoted, and these have had to be overcome as well as possible. The official records contain luminous accounts of the early struggles.

But it is now universally recognised that the maintenance of an efficient railway system is a national necessity, and the London Midland and Scottish Railway, with its great heritage, is unceasing in its efforts to fulfil the transport requirements of the community. To-day the L M S is not merely a railway company, it is a comprehensive transport system in itself; it employs every form of transport in its endeavour to provide efficient service. The history of the last 100 years is inevitably bound up with the railways now forming part of this great group; but it is equally certain that when the history of our times comes to be written the L M S will earn an important place in the story.

Comprehensive National Transport

LONDON MIDLAND AND SCOTTISH RAILWAY

THE ECONOMIST

LONDON MIDLAND AND SCOTTISH RAILWAY

INTRODUCTION ..... PAGE 3

	PAGE		PAGE
CONSTITUENTS OF THE L.M.S.	3	FAMOUS MEN	13
MAP OF THE SYSTEM	7	SOME STATISTICS	14
THE STORY SINCE 1923	11	PRESENT AND FUTURE PROBLEMS	16

Introduction

THE London Midland and Scottish Railway Company, created in 1923, under the Railways Act of 1921, is not merely, in point of size, the largest railway undertaking in the United Kingdom. It is by much the largest non-Government business enterprise in the United Kingdom, and it ranks among the greatest undertakings of any country in the world, with an annual revenue exceeding that handled by many sovereign States. Although its active interests are limited to an area bounded by Londonderry, Thurso, Swansea and Hamburg, it has outposts as far afield as Paris, New York, Chicago and Los Angeles. Its stockholders' capital (the whole of which received dividends last year), totals £414 millions, compared with £74 millions for Imperial Chemical Industries, Limited, £67 millions for Lever and Unilever, Limited, and £50 millions for the Imperial Tobacco Company (of Great Britain and Ireland), Limited—to name three of the largest non-railway companies of this country whose shares are familiar to the British investor.

Last year, the London Midland and Scottish Railway paid approximately £41½ millions in wages and salaries to its staff of 232,000 workers. Its 7,945 locomotives and rail motor vehicles travelled, in all, some 235 million miles, on a total track (including sidings) of 19,296 miles, whose renewal and maintenance involved the consumption, in the single year 1937, of nearly 97,000 tons of new rails and 1,663,000 new sleepers. Nearly 460 million passengers (including season ticket holders) travelled on the company's system last year, and over 140 million tons of merchandise were moved on it. Even the subsidiary and ancillary services of so vast an undertaking make a substantial contribution to the economic activity of Great Britain. The company, for example, is one of the largest employers of labour in the engineering industry and a leader in the hotel and catering trades.

The contribution of many of the constituent companies in the L.M.S. to the annals of railway development the world over has been epoch-making. The company incorporates the first railway on which steam power was continuously employed in the public service. In different capacities, on the engineering, financial and "diplomatic" sides, its pioneers — like the two Stephensons, Huish, and even Hudson, "the Railway King"—exercised a decisive influence in the drawing of the railway map of to-day.

In the following pages are related the story of the L.M.S.: the history of its construction and development covering more than a century; the outstanding characteristics of its component sections; the progress in technique, organisation and management since the amalgamation in 1923; the personalities who have guided its endeavours; and, finally, its prospects in the future and the part it may be destined to play in Britain's commercial, industrial and social organisation. Our Survey includes, also, a statistical review of the progress of each of the largest constituent undertakings at ten-year intervals from 1850 to the time of their post-war amalgamation, with a similar analysis for the joint undertaking in key years from 1924 to 1937. A complete record is also provided of the rates of ordinary dividend paid by the four most important constituent companies, from their earliest years onwards. Much of this historical material has hitherto been either unpublished or relatively inaccessible to the general student. It is hoped, therefore, that our Survey may combine interest for the general reader with utility to future railway historians.

Constituent Companies of the L.M.S.

THE first main line railway intended to employ steam locomotion for haulage of passenger and freight traffic in the world may be regarded as the birth of the London Midland and Scottish Railway of to-day. It is, therefore, appropriate to begin an outline of the company's history and growth by reference to the London and North Western Railway, the constituent which absorbed the original Liverpool and Manchester Railway, the world's first main line company.

After desperate opposition from local landowners the original Liverpool and

LONDON AND NORTH WESTERN RAILWAY

Manchester Railway was opened in 1830. To George Stephenson may be given the credit for its conception as a steam railway, for the "Rocket" proved, at the Rainhill trials of the preceding year, the practicability of steam locomotive traction. Although the capital cost far exceeded the original estimates, the Liverpool and Manchester proved a highly satisfactory financial investment, its estimated traffic receipts being but a fraction of its actual achievements. Briefly, the line, once completed, fulfilled the most optimistic hopes, both as to the service it offered between the two Lancashire towns, and the reduction it effected in transport charges between the Manchester area and the sea. The economic results of its success were even more decisive. They demonstrated to the whole world that a steam railway was a commercial proposition under suitable conditions, and loosened the purse strings of capital. Actually, a "Liverpool party" was active on most of the

early railway boards. Half the capital of the London and Southampton Railway in 1835, for example, is reliably reported as having been supplied from Manchester and Liverpool, and the latter city may claim to have played the lead in obtaining capital for the construction of the British railway system as a whole. Incidentally, it is significant that the profits of the Liverpool and Manchester Railway were, in early years, derived mainly from passenger traffic.

In modern days, when the centralisation in London of so large a part of the direction of Britain's economic and commercial affairs has provided a national problem of great magnitude, it is sometimes forgotten that, when the British railway system first began to take shape, its main arteries stretched out towards London from the north, rather than radiated from the metropolis. One might legitimately claim that the earliest important railway junction, and the original nodal point of Britain's first large railway system, was at Warrington, in Lancashire. From that town, southwards, was constructed the Grand Junction Railway, opened to Birmingham, *via* Stafford, in July, 1837. Economically built, at a cost of well under £20,000 per mile, the Grand Junction Railway in the early 'forties paid a regular dividend of 10 per cent., and as early as 1837 its shares (£90 paid up) were standing at £186. In the period from 1840 to 1845 it absorbed local lines in Cheshire and Lancashire, and by 1845 the Grand Junction Railway had become comparable in importance with the London and Birmingham Railway, with which it connected at the latter city.

Formation of the L.N.W.

The London and Birmingham Railway, whose Act received the Royal Assent in May, 1833, was not opened throughout, between Euston Grove and Birmingham, until September, 1838. On its completion, however, a passenger could travel by rail the whole way from London to Liverpool or Manchester, or even, in the following month, to Preston. The London and Birmingham was the world's first double track main line of over a hundred miles' length. Like its northern neighbour, it paid an average dividend of 10 per cent. from 1840 to 1845, inclusive. There were many expensive works on this railway —notably the Kilsby Tunnel—and the original estimates of £2,500,000 were far exceeded. The company's Act of Incorporation alone involved total payments of nearly £73,000. A little known provision in it was the power to prevent "the smoking of tobacco" in the company's carriages. Of Hardwick's Doric Arch at Euston much has been written. The works throughout were on the grand scale, typified by the station entrance at Curzon Street, Birmingham, where a board of directors sat, in addition to the London board.

The amalgamation of the London and Birmingham, the Grand Junction and the Manchester and Birmingham (a line opened in 1842, with a capital of £2,800,000), brought about the birth of the London and North Western Railway in 1846. The capital of the L.N.W., on its formation, amounted to the prodigious figure, for that time, of almost £23 millions. The length of this giant of the early Victorian era was 420 miles. Its earliest dividend was at the rate of 10 per cent., but the continued demand for new capital for extensions, acquisitions and improvements had reduced the dividend to 5¼ per cent. by 1850.

Amalgamations and Extensions

The L.N.W. was formed at a period when railway strategy was based, as a matter of course, on the theory that attack was the best form of defence. To preserve its territory from the encroachment of competing lines, the company was virtually compelled to adopt a continuous programme of extension and absorption. The Chester and Holyhead line, opened in 1850, included a number of unique engineering works, notably the Menai Tubular Bridge designed by Robert Stephenson (one of the largest engineering structures of its time), and the somewhat smaller tubular bridge at Conway. Politically, this link was of major importance, since it brought Ireland nearer by several hours to London. The Holyhead and Kingstown steamer service was actually operated by the Chester and Holyhead Railway from 1848 onwards, though it was not until 1858 that the line was finally absorbed by the London and North Western.

By the 'fifties of last century, Huddersfield, Leeds and Dewsbury in the north, and Northampton, Peterborough, Aylesbury, Oxford and Leamington in the south, had all been brought within the London and North Western's ambit. The Trent Valley line provided the company with a speedier route to the north, avoiding Birmingham. It also relieved a good deal of congestion; for before the opening of King's Cross Station the railway traveller from London to York entrained at Euston. Meanwhile, the metals were steadily reducing the gap which separated the London and North Western Railway from the Scottish lines centred on Glasgow. By 1847, the southernmost section of the Caledonian Railway from Carlisle to Beattock had crossed the border. The first through trains from London to Scotland, *via* Carlisle, began to run in 1848, over the metals of the Lancaster and Carlisle Railway, which was leased by the London and North Western in 1859 but not definitely absorbed until 1879.

Thus the project of a West Coast route to Scotland was brought to fruition. Its length of five hundred miles was originally owned by six different railways, and not until 1923 was it to pass under a single ownership, when the London Midland and Scottish Railway took over the whole system, from London to Aberdeen. The four hundred miles north of Birmingham, however, were all constructed to the designs of two engineers acting jointly. One of the early through passengers was Queen Victoria, whose journey was arranged at a few hours' notice at a time when telegraphs were not available. Although the speed on the royal run in no place exceeded 50 miles per hour, its average was as much as 35 miles per hour—a distinctly creditable achievement for a railway, ninety years ago.

The Era of Competition

Table I, on page 14, shows that, on the London and North Western system, the 'sixties and 'seventies were a period of steady growth. In the second half of 1859, the half-year's receipts first passed the £2,000,000 mark. In 1860, goods receipts overtook passenger traffic. During this period, however, expenses were rising somewhat disproportionately to receipts, owing to the inability of the company to digest all its recent absorptions. By the later 'sixties the position had improved. The competitive activities of the Great Western had been kept in check, largely owing to that company's difficulties arising from its mixed gauges. On the east, the Manchester, Sheffield and Lincolnshire (later the Great Central Railway) and the Great Northern had not succeeded in penetrating far into the London and North Western's preserves. The most formidable competition came rather from the rapidly growing Midland system, whose story is told on succeeding pages of this Survey.

Railway politics in mid-Victorian England have a significantly close resemblance to the power politics of Continental Europe to-day, but their outcome was usually one which modern Europe might profitably copy. For these competitive exertions were usually ended by agreement on joint ownership of disputed lines, or by granting running powers to one company over the lines of another. The London and North Western Railway had its full share of these arrangements. It reached Central and South Wales by means of mileage centred on Shrewsbury and Hereford, which was owned jointly with the Great Western Railway. By similar means it reached Birkenhead. Around Preston, Blackpool and Manchester it worked in close relationship with the Lancashire and Yorkshire. In the Lake District, its services were closely linked with the Furness Railway, whose headquarters were at Barrow.

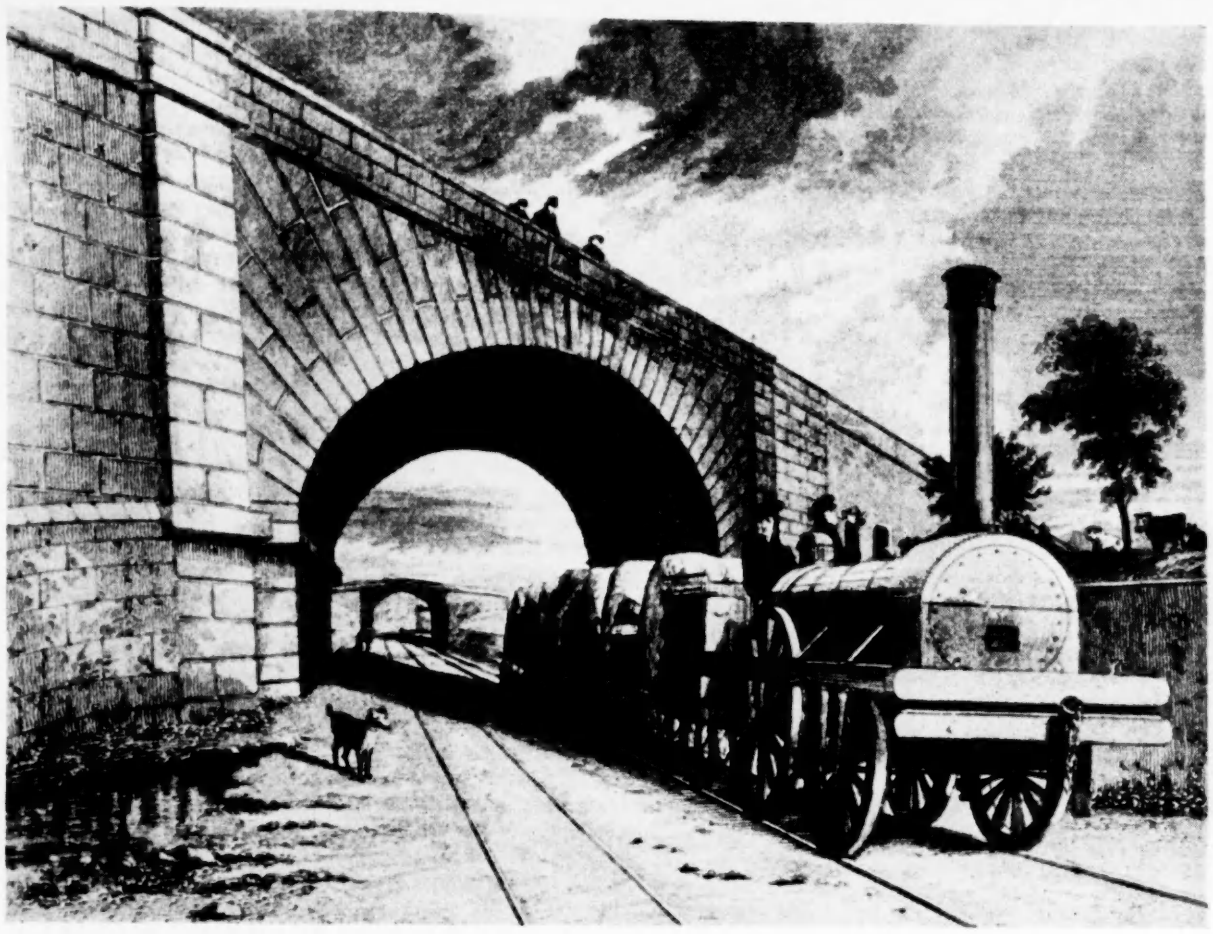
The era of rapidly expanding mileage had so far come to an end by the eighteen-seventies that the London and North Western Railway of that period was much the same system as that which amalgamated with the Lancashire and Yorkshire in 1922. In the intervening half-century, however, vast improvements were made in its organisation, technical development and potential capacities. For example, four lines were made available between London and Crewe, if one counts the alternative routes between Roade, Blisworth, Northampton and Rugby (though there remain to-day some small sections of double or treble track in the Lichfield-Tamworth area). Widenings were also extensive north of Crewe, and in the Liverpool, Manchester, Preston and Chester districts.

The year 1870 was one of considerable prosperity for the company, whose operating ratio was still as low as 47 per cent. As will be seen by a reference to Table I, however, the results for 1880 were even more satisfactory. By that time, however, the operating ratio had started to rise; until in 1921 it was as high as 83 per cent. As a guide to financial prosperity, however, the operating ratio must be related to the volume of traffic.

Abortive Schemes

Certain events during the last thirty years of the nineteenth century require special mention. The London and North Western arranged a close work-

RAINHILL BRIDGE



Liverpool and Manchester Railway

ing agreement with the Lancashire and Yorkshire in 1862, and complete amalgamation was the object of a bill of 1872. The opposition of other railways, however, proved too strong, and the project was abandoned. Public opinion, indeed, was not yet ripe for the achievement of a policy which was only brought to fruition after the Great War, when the attitude of Parliament and the nation towards competition on the railways had been entirely transformed. It is, perhaps, not wholly unprofitable to speculate on the value of the savings which the projected amalgamation would have brought to the railways, and the whole country, in the period from 1914 to 1920, and the extent to which the financial position of the London, Midland and Scottish Railway would have been improved during the last ten crucial years if standardisation of rolling stock of these two lines had dated back to the 'seventies instead of to 1922. In all probability, again, certain duplicate routes would never have been constructed at all. An even earlier attempt was made, in 1851, to fuse the London and North Western with the Midland. Had it succeeded, British railway history would have been very different; for St. Pancras Station would never have existed and, in all likelihood, the difficult main line from Settle to Carlisle would not have been constructed.

The London and North Western Railway before 1923 proudly styled itself the "Premier Line." In many respects the claim was justified. Its coaching stock of chocolate and white (or "plum and spilled milk") was probably the finest advertising medium any British railway ever had. Its locomotives were black, but they were kept scrupulously clean. They may not, perhaps, have been wholly as efficient as those of some of its rivals—at any rate, if efficiency be measured by fuel economy. Their varied nomenclature, however, undeniably added to their attraction for the railway enthusiast and the younger generation. At the special request of King George V, the Royal Train still carries the London and North Western colours.

Technical Achievements

While the comfort of its rolling stock, the punctuality of its services and the excellence of its dining cars and sleeping cars did much to enhance the reputation of the London and North Western, in the more technical spheres the company did not lag behind its neighbours. It was early in developing eight-wheeled coaches in 1882, steam-heating and electric lighting in 1895, and the use of metal underframes and all-metal bogies from 1892. It was a pioneer, also, in the design of the corridor coach, and its 2 p.m. express to Scotland, for many years after 1893, was known as "The Corridor." As early as 1905, the company built special vans for motor car traffic. Its constituent, the Liverpool and Manchester Railway, had actually used containers in the eighteen-thirties.

Nor did the company neglect the development of freight traffic. Its famous marshalling yard at Edge Hill, Liverpool, planned in 1873, still remains one of the railway wonders of the world. The same remark applies also to its avoiding subway lines for freight traffic at Crewe, the nodal point of the L.N.W. and the site of its great locomotive works, in a position chosen by Trevithick in the days of the Grand Junction. Even to-day these works, with their potential output of two new locomotives per week, in addition to general repairs to existing engines, remain one of the largest locomotive works in the world. To the rail rolling mill at Crewe (closed a few years ago) all the British railways owe an important debt. This mill first demonstrated the practicability of the long 60-ft. rail, which has become standard for all the British railways only during the last ten years. The London and North Western, in fact, began to use 60-ft. rails in 1894. To Ramsbottom of the L.N.W., again, was due the inauguration of water pick-up troughs. Another special feature of the London and North Western permanent way was the use of a felt pad underneath the chairs in which the rails are set. Interlocking—an important step in the increasing safety of railway operation—was used by the London and North Western as early as 1859. The first railway travelling post office in the world left Euston in 1838.

All in all, the "Premier Line" with the "best permanent way in the world" will remain more than a memory to railwaymen and railway users of an age to know the pre-war London and North Western Railway, and the pride of its staff in their undertaking. It is time, however, to turn to the second of the great constituent lines of the L.M.S.—the Midland Railway.

MIDLAND RAILWAY

The first section of the Midland Railway to be opened was a line between Leicester and Swannington in 1832. The Midland itself was formed in 1844, by the amalgamation of three railways which, by the standards of the time, were already large. They were the Midland Counties (opened in 1839), the North Midland (opened in 1840), and the Birmingham and Derby Junction Railway (opened in 1839). The first of these lines brought Derby into rail connection with Nottingham and Rugby, where contact was made with the London and Birmingham. The second stretched northwards from Derby to Leeds. It was joined at Normanton by the Manchester and Leeds—the earliest important section of the Lancashire and Yorkshire Railway—and the York

and North Midland. Thus Derby was the central point of the Midland at its birth; and it remained so until 1923. At Derby were established the locomotive, carriage and wagon shops, which to-day are still among the biggest railway workshops in the world.

The Midland Railway at its formation had a capital of almost £7,000,000. The North Midland line, constructed at heavy cost, accounted for more than half this sum. The merger company's growth was rapid. By 1850 total capital had increased to over £17 millions; for the company served the Midland counties, where the pace of industrial growth in the mid-nineteenth century was fast indeed. The aim of those who guided Midland Railway policy seemed to have no limits except the sea. In one case even that proved no barrier, when the Midland reached out to Londonderry. For the company's forward policy, at this period, George Hudson, the "railway king," was largely responsible.

Battle of the Gauges

Among early absorptions was that of the Birmingham and Gloucester, which had been opened in 1840. As that company was a standard gauge, and not a broad gauge, line, it was welcomed by the London and Birmingham, which allowed the Birmingham and Gloucester to use its station at Birmingham, the forerunner of the present New Street. At Gloucester were staged some of the bitterest scenes in the "battle of the gauges." The Great Western, with its 7-ft. gauge, was outmanœuvred by the Midland when the latter obtained control of the broad-gauge Bristol and Gloucester Railway—a daring move, since the Midland could not operate through trains into Bristol until the broad gauge had been changed to standard, in 1854. Beyond Bristol, however, further Midland progress towards Devon and Cornwall was effectively blocked by the 7-ft. gauge Bristol and Exeter, South Devon and Cornwall Railways, which were all within the Great Western's sphere of influence. The Midland, by constructing a line to Bath, was able at a later date to reach the English Channel at Poole, through joint ownership with the London and South Western Railway of the Somerset and Dorset line. That connection played no unimportant part in building up Bournemouth as a favourite holiday resort for the industrial towns in the Midland Counties, Lancashire and Yorkshire.

Space forbids detailed description of the network of lines gradually built up by the Midland in the South Yorkshire coalfield and the West Riding. The company reached Skipton in 1846, and, by absorbing a local line, touched the Irish Sea at Morecambe in 1852.

The Midland Reaches London

The year 1858 was an eventful one for the Midland. By constructing a line from Leicester to Hitchin, passing through Bedford, the company was enabled to use the King's Cross terminus of the Great Northern Railway. For the first time, it could successfully tap the London traffic. Such an arrangement, however, could not long remain satisfactory. Congestion and endless delays occurred in the bottleneck between Hitchin and King's Cross which passed over the Welwyn Viaduct and through numerous tunnels—a route still regarded as too expensive to widen. Consequently, after strong opposition, the Midland obtained an Act in 1863, authorising it to construct its own line into London, with a separate terminus. The resulting station of St. Pancras—a Gothic edifice with an adjoining hotel now used as the London Midland and Scottish engineer's offices—was regarded somewhat as an architectural masterpiece; but tastes have changed since 1868.

The building of the London extension in no way delayed the Midland's further penetration in other parts of the country. The preceding year had seen the company's arrival in Cottonopolis, and, soon afterwards, the company reached Liverpool, by taking a third share with the Great Northern and Great Central Railways in the Cheshire Lines Committee.

The natural tendency among the travelling public to think of railway competition in the terms of passenger traffic alone, and to regard a longer and more devious route as wholly disadvantageous, is not, strictly speaking, sound. A moderate differential in mileage means little in terms of heavy freight, and the Midland was primarily a freight line, with an extensive coal traffic. Competition between the various coalfields in Leicestershire, Derbyshire and Nottinghamshire had, indeed, been the genesis of its construction, and to this day the Midland Division of the London Midland and Scottish carries southwards an outstanding proportion of London's coal supplies. The Midland's chief disadvantage, in comparison with its rivals, lay less in its circuitous routes than in its heavy gradients. These were particularly in evidence on its Derby-Manchester line, on the extension from Settle to Carlisle, over Aisgill summit (completed in 1876), and on the difficult single-line section from Bath to Evercreech Junction on the Bournemouth line. Even the London extension line had a summit to surmount at Sharnbrook, near Bedford.

A Ubiquitous System

The Midland was nothing if not ubiquitous. By its incursion into South Wales over the Hereford, Hay and Brecon line, it tapped the valuable traffic of Swansea, with its anthracite coal, tinplate and other industries. The Carlisle extension linked the Midland with two of the Scottish railways. Through services were run from London and other English cities to Glasgow, over the Glasgow and South Western Company's metals, and to Edinburgh over the North British Company's Waverley route through Hawick and Galashiels. These routes were longer than the competitive West and East Coast routes, but they drew to themselves a faithful clientele. In particular, a traffic of no mean order was carried between the midland cities—Sheffield, Leeds and Bradford—and the two great Scottish centres of population.

Reference to Table II, on page 14, will show that in the last thirty years of Queen Victoria's reign the Midland Railway made steady progress, marked by a satisfactory dividend record. Although its operating ratio rose steadily (like those of all the other major British lines), from 48 per cent. in 1870 to 62 per cent. in 1900, the rate of dividend on its ordinary stock only once fell below 4 per cent., and on eleven occasions it was 6 per cent. or over, until in 1897-98, the company indulged in stock-splitting on a large scale. Its decision was largely responsible for an apparent increase of nearly £60 millions in its capital and, despite the able advocacy of Mr H. H. Asquith before the House of Lords, it cost the company over £100,000 in duties and costs.

Throughout the later years of the nineteenth century, the Midland's passenger earning power rose continuously. Midland coaching stock could be seen on all the coasts of Britain—even at Lynn and Yarmouth, which were reached over a line jointly owned with the Great Northern. By this means the company obtained a share in the fish traffic of Yarmouth and the fruit traffic of Wisbech, and developed a market for these products in Leicester, Birmingham and Nottingham. The East Anglian coast also proved a popular destination for holiday-makers.

Tourist traffic, indeed, was a speciality with the Midland from its earliest days. The earliest excursion train of which there is an authentic record was run on July 20, 1840, when the Nottingham Mechanics' Institution visited that year's Leicester Exhibition. Only a year later, one Thomas Cook organised his first excursion between Leicester and Loughborough; and founded the business which brought his name into prominence throughout the civilised world.

Twentieth Century Extensions

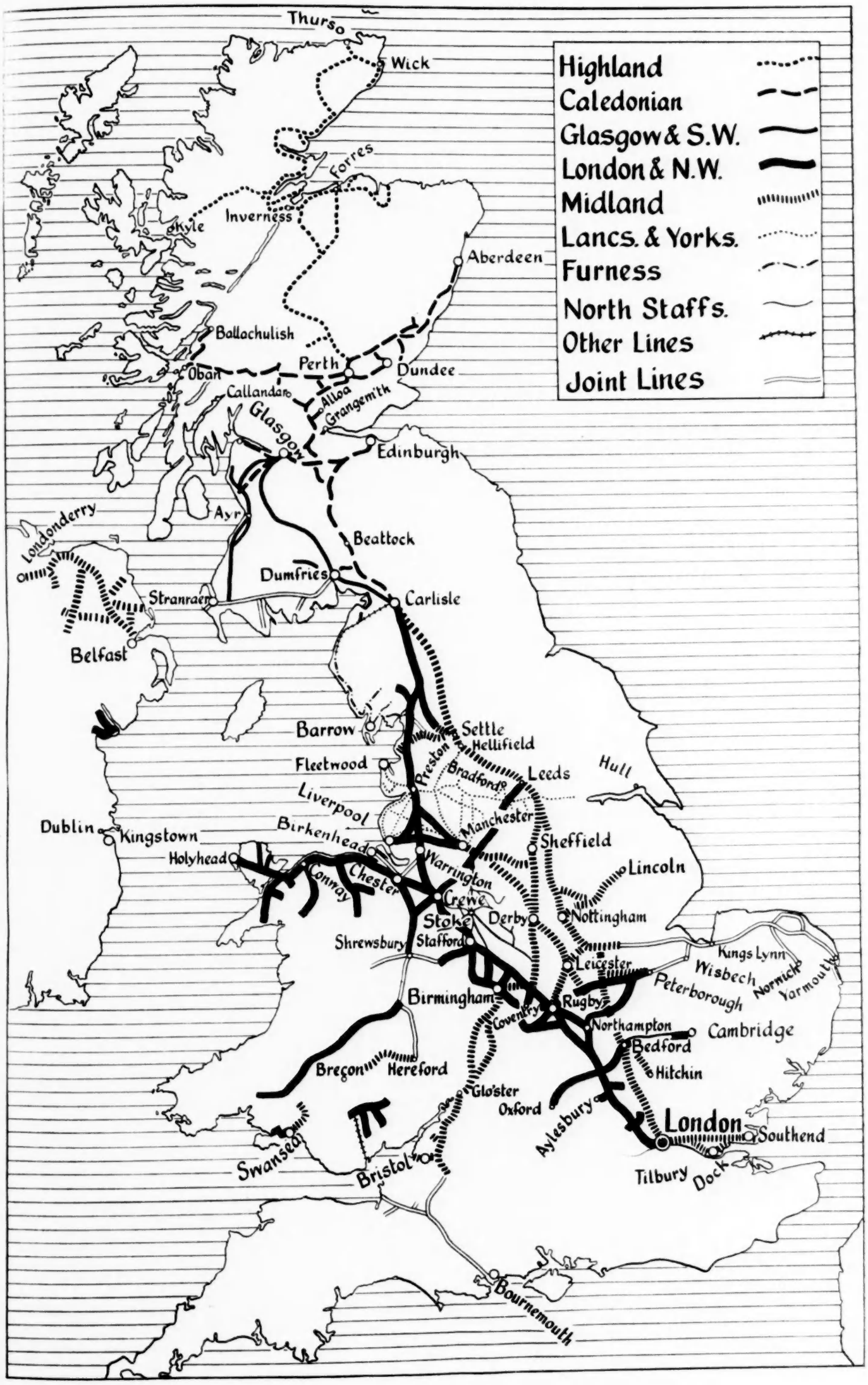
Unlike the London and North Western, the Midland continued its policy of extension, even after the turn of the century. In 1903 it acquired the Belfast and Northern Counties Railway (now known as the London Midland and Scottish Northern Counties Committee) and became a strong competitor with the Lancashire and Yorkshire and the London and North Western for the cross-channel traffic to Northern Ireland. The Midland system now included two gauges, for the Northern Counties lines had been built to the Irish gauge of 5 ft. 3 in. A third gauge was added a couple of years later, when the company, jointly with the Great Northern Railway of Ireland, took over the narrow gauge County Donegal lines. Westwards, the Atlantic Ocean now barred further progress, so the Midland turned eastwards yet again. Its last major acquisition was the London, Tilbury and Southend, an unusual line, with a history as long as its mileage was short. The Tilbury and Southend had two totally divergent interests: first, its suburban and holiday traffic to Southend, which provided all the problems of peak travel; and, secondly, its growing freight traffic as the sole railway serving Tilbury Docks.

Problems and Achievements

Such was the development of a railway whose policy frequently affected the whole British railway system. Its bold bid for popularity by abolishing the second class in 1875, was bitterly opposed by its competitors, who, nevertheless, were obliged, one by one, to follow suit. Many passengers to-day still remember the comfort and roominess of the pre-war Midland coaching

MAP OF THE SYSTEM

(Showing Constituent Lines)



stock, with its almost ornate upholstery, its clerestory roofs, and its rich, crimson exterior painting, lined out in gold and black. Yet, in certain technical respects, Midland stock was tending to fall behind that of some other lines before the war. Gas-lighted coaches were still being built at Derby almost up to the time of the amalgamation of 1923, and wooden underframes remained a feature of Midland design long after they had ceased to be used by other large companies.

On the locomotive side, also, the Midland, in its later years, with its heavy gradients, had special problems. The use of two locomotives to a train was a normal feature of Midland operating work, partly owing to the inadequate axle-loading capacity of the bridges on its main lines. Serious delays and congestion ensued, and revolutionary measures had ultimately to be taken to reorganise the carrying capacity of the line. Credit for the entirely successful solution of this problem is due to the genius of the late Sir Cecil Paget, whose familiarity with operating methods in America and France first suggested to his mind an English adaptation of the American dispatching system. It is no exaggeration to say that the resulting Midland control system, more than any other single feature, has revolutionised British railway operating methods. It has been adopted, also, on many Dominion and Colonial railways and French lines.

Up to its amalgamation in 1923, the Midland, which was managed, organised and operated from Derby, provided an example of the most centralised type of British railway organisation. Differences of opinion existed, and will always exist among railway engineers and technicians, on the relative efficiency of the Midland and other pre-amalgamation British lines. One thing, however, is certain: no company has left its mark more indelibly on British railway history.

LANCASHIRE AND YORKSHIRE RAILWAY

The third constituent company of the present L.M.S. system, the Lancashire and Yorkshire Railway, was, after the North Eastern Railway, the most important English line which had no terminus in London. Only those readers with first-hand knowledge of the industrial north of England have an adequate conception of the leading part played by that railway in the commercial progress of Lancashire and Yorkshire.

The "Lanky York," as it was familiarly known, had its origin in the Manchester, Bolton and Bury Canal Navigation and Railway of 1831. Its spinal cord, however, was the Manchester and Leeds Railway, which was opened after great engineering difficulties in 1841. Canal opposition was strong in the case of many early railways, and in this instance it was sufficient to defeat the original bill. The line, nevertheless, reached Leeds by means of running powers over the North Midland. Its capitalisation was high, even for a double-track line, at nearly £30,000 per mile. That the company, however, earned good dividends, ranging from 5½ per cent. to 8 per cent., in the early 'forties, was largely attributable to the difficulties of road transport in this district of the Pennine Range which it served.

An Industrial Line

From its inception, Manchester was the nodal point of the line, and the headquarters of its activities. The title of Lancashire and Yorkshire Railway was taken in 1847, a year after amalgamation with the Manchester and Bolton Company. For some years the line had relied on the Liverpool and Manchester Railway for its Liverpool traffic, but absorption with the Liverpool and Bury in 1846 gave it an outlet of its own to the Mersey. In the east, the acquisition of the West Riding Union line carried Lancashire and Yorkshire metals almost from the Irish Sea to the Humber.

As reference to Table III (on page 14) reveals, capital expenditure per mile continued to be heavy throughout the company's growth. But while its mileage increased slowly, its receipts rose rapidly. The freight receipts per train mile of the Lancashire and Yorkshire, in fact, were far above those of the London and North Western and the Midland Railways during the period from 1870 to 1900. The company, indeed, was carried on the flood of increasing production of the textile industries. Busy and expanding towns like Blackburn, Preston, Burnley, Colne, Accrington and the Rossendale towns were served by railway systems which the Lancashire and Yorkshire steadily absorbed into its parent organisation. Jointly with the London and North Western (with which it so nearly amalgamated) the company developed Fleetwood as a port for a valuable passenger and freight traffic to Belfast, and for the fish traffic on which Fleetwood's facilities are now mainly concentrated. To the north, connection was made with the Midland's route to Scotland at Hellifield, while to the south the company penetrated to Sheffield, Pontefract and Wakefield. It was one of the many lines which tapped the South Yorkshire coalfield, and its access to Goole opened up a coal trade of considerable magnitude through that port, from which a large number of small steamers carried freight traffic across the North Sea to Germany, Holland and Belgium.

Increasing Capitalisation

The dependence of the Lancashire and Yorkshire on an almost wholly industrial area involved anxious times for the management in periods of trade depression. Yet even, in 1885, when the Chairman reported that the first half of the year had given the board considerable anxiety, the ordinary dividend was no lower than 3¼ per cent. Incidentally, the same speech mentioned a new cut off line to Blackpool, "for you all know that Blackpool is becoming the most popular seaside resort for our Lancashire and Yorkshire people and the traffic is enormous." Nevertheless, capital expenditure was increasing. In the succeeding year a shareholder complained that "since 1872 we have increased our capital account by £16 millions, and practically spent it on the same line, whilst I do not see that our net traffic earnings have increased anything at all." The statement was typical of many made at railway meetings at this time. The period of railway mileage expansion was fast coming to an end, and the period of intensive internal development—which still continues—was beginning. The operating ratio of the Lancashire and Yorkshire in 1870 was 46 per cent.; by 1890 it had risen to 56 per cent. and in 1913 it stood at 65 per cent.

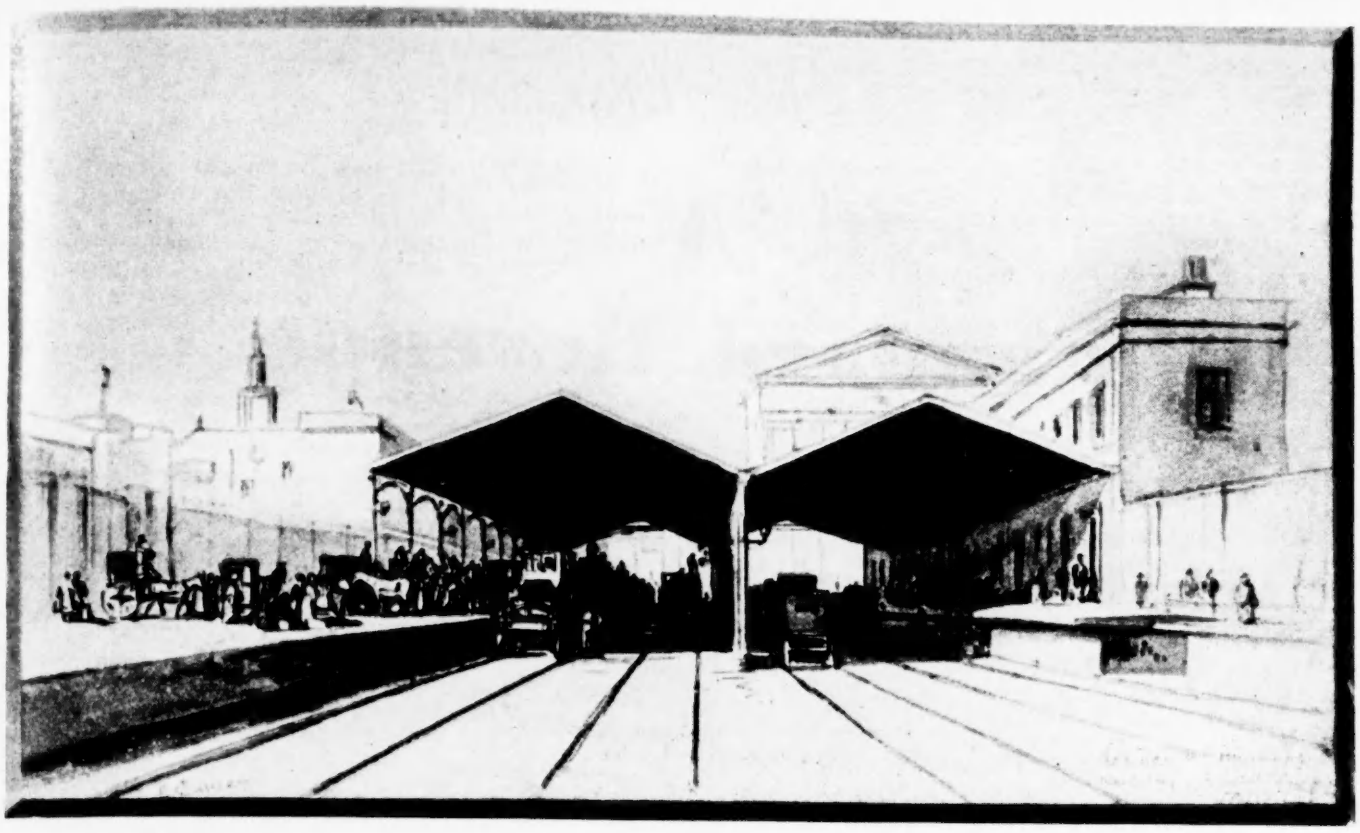
Technically, the Lancashire and Yorkshire was a notable line. Its locomotive shops at Horwich were a famous training ground for railway mechanical engineers. Under the late Sir John Aspinall, a firm believer in electric traction, the company achieved pioneering distinction in the period 1903-04 by electrifying its line from Liverpool to Southport, and, later, to Ormskirk. The Manchester and Bury line, electrified in 1916, was unusual in its adoption of the direct current 1,200 volt third rail system. For the rest, a high degree of exactitude in railway operation was indispensable on a system which had to cope with dense freight traffic, short distances, heavy gradients and through running with many other lines. To ensure adequate and immediate superintendence, a remarkable control system, coupled with complete telephone equipment to all the main points on the railway, was inaugurated at Manchester.

In 1922, the Lancashire and Yorkshire was amalgamated with the London and North Western Railway, before the other constituent lines were grouped in the London Midland and Scottish Railway. The large part subsequently played by its chief officers in L.M.S. policy and management, is a tribute to the merits of the Lancashire and Yorkshire as a training ground for the qualities which make up a responsible, knowledgeable and resourceful railway official. For, on the Lancashire and Yorkshire, the demands of successful operation were too exacting, and the system of control too delicate, to allow any room for serious error.

CALEDONIAN RAILWAY

The Caledonian was generally regarded as the premier Scottish railway. If heredity counts for anything, the claim cannot be disputed, for the Caledonian's ancestors—the Dundee and Newtyle and the Glasgow and Garnkirk—dated back to 1826. The first important main line of what was to be the Caledonian system linked Carlisle to Glasgow and included the formidable Beattock bank, which still presents the London Midland and Scottish with one of its most serious operating problems. When the new line was opened over its whole length, early in 1848, it completed the west coast route to Glasgow. In the same year a branch was opened to Edinburgh. By means of a connection at Castlecary, the Caledonian (incorporated in 1845), made contact with the Scottish Central, which ran to Perth. Amalgamation with this line was consummated in 1865, and a year later the absorption of the Scottish North Eastern carried the Caledonian as far north as Aberdeen—beyond which it never extended. And the Dundee and Perth line, absorbed in 1863, gave it participation in the fortunes of the jute, shipbuilding and marmalade industries of Dundee.

The main outline of the Caledonian Railway, like that of its southern ally, the London and North Western, was complete by 1870. At that time its capital was about £22,700,000. Its dividends were always less than those of the larger English railways now incorporated in the L.M.S. systems, as will be seen by reference to Table IV on page 15. Its influence on Scotland's economic development, however, was



THE FIRST EUSTON STATION

considerable. Centred on Glasgow, it gradually evolved a vast suburban traffic on Clydeside. It largely fostered the iron, steel, shipbuilding, engineering and allied trades in that area, and it catered on a sumptuous scale for the tourist traffic on the Firth of Clyde. With other railways, it shared also in the development of the Stranraer route to Belfast. In the Highlands it pushed north-west to Callendar, Oban and Ballachulish. Its ports of Grangemouth and Alloa provided useful export and import routes for the heavy industrial area of Lanark, Airdrie, Coatbridge, Motherwell and Wishaw.

The "Caley" was a popular line with the Scottish travelling public, with its distinctive white panelled coaches and blue locomotives. The latter, incidentally, were furnished with a particularly effective hooter which was later to become "standard" on the L.M.S., after the American Press had taken good-humoured exception to the "Royal Scot's" shrill whistle.

The Caledonian was never over-prosperous, and its operating problems involved a good deal of expense. Nevertheless, its locomotive stock was above the average of many more southerly lines, and its rigid attention to economy enabled it to face years of pre-war trade depression without losing the patronage of the passenger or trader. A lower average density of traffic per mile than that of many of the English lines forced it to keep its operating ratio at a comparatively low figure, but it catered well for the needs of the industries it served.

OTHER CONSTITUENT COMPANIES

Glasgow and South Western

The remaining constituent companies of the London Midland and Scottish Railway may briefly be described. In Scotland, the Glasgow and South Western Railway, with lines radiating from its St. Enoch terminus in Glasgow and stretching down the Clyde coast to Greenock, served the Firth of Clyde ports from Largs to Irvine, Troon, Ayr and Girvan. Its southerly main line passed through Ayr to Dumfries and Carlisle, where it exchanged traffic with the Midland. It also shared in the Stranraer route to Ulster. At the close of 1921 its capital expenditure was rather over £20 millions and its route mileage almost 450. Its locomotive stock numbered about 530, of which few units remain to-day. It played an important part in the development of the Clyde steamer services, the suburban traffic of Glasgow, the Ayrshire coalfield and the through services from England to Glasgow.

Highland Railway

In the far north, the Highland Railway was the trunk line from Perth to Inverness, Kyle, Forres, Thurso and Wick. It was almost wholly a single line in 1921, when its capital expenditure was about £7,500,000, its route mileage 484, and its locomotive stock 173. North of Inverness it had a railway monopoly. Sparse traffic, heavy gradients and snow troubles in winter involved the Highland in a hard struggle for existence. In 1921 it succeeded in paying a 2 per cent. dividend on its ordinary stock; but its track, coaching stock and stations were far below the standard of its southerly neighbour, the Caledonian.

Furness Railway

An important constituent line of the present London Midland and Scottish on the English side of the border was the Furness Railway, which was centred on Barrow and served the attractive Lake District. Its capital expenditure in 1921 approximated closely to that of the Highland, but its route mileage was only 115, and the total of its locomotives 138. A heavy ore and mineral carrier, it expended much energy on its docks at Barrow-in-Furness. A unique feature of its activities was its annual offer of a scholarship to enable one of its staff to enter a university. Physically, the Furness had serious problems in the maintenance of long viaducts over tidal estuaries. In times of trade depression its fortunes were precarious, though it succeeded in attracting holiday travel to the charming country it served. In 1921 it was just able to declare a dividend of 1 per cent.

North Staffordshire Railway

Further south was the North Staffordshire Railway, radiating in all directions of the compass from Stoke. By the end of 1921 this system had cost about £9,250,000 to build. Its route mileage was 206 and it possessed nearly 200 locomotives. Although it remained a local line, it had connections with five main-line railways. It served the local industries efficiently, and the pottery towns took pride in the preservation of its independence for nearly eighty years. Careful management and successful operation were revealed by its ability to declare a 5 per cent. dividend in 1921.

Such were the constituent companies of the present London Midland and Scottish Railway system, in addition to many smaller lines. At the time of the amalgamation, each railway had its own problems, its own *esprit de corps*, its own traditions and its own policies. The welding of them all into one great system was probably the greatest task in industrial organisation ever undertaken by a British company. Its inevitable difficulties were increased by the fact that a railway's staff must necessarily be scattered and cannot receive the detailed supervision applicable to the workers in a factory, or a series of factories. The remainder of our Survey shows how, and with what degree of success, the problem was faced.

A Standard Revenue

All serious thinkers about transport in this country agree that it must cover its cost and leave a surplus for development. That is to say, transport must be self-supporting. The alternative would be to subsidise transport out of public funds, and that would clearly be undesirable.

The Railways Act of 1921 provided a new form of control of charges by fixation of a standard revenue or profit (before remuneration of debenture capital) which the charges should aim at earning, regard being had to all sources of revenue and not only that from railway charges. The scheme of the Act contemplated annual reviews at which, if the standard revenue were not achieved, the Railway Rates Tribunal would increase charges so as to reach that goal. If the standard were exceeded the Tribunal would reduce charges by an amount equal to 80 per cent. of the excess.

There was no State guarantee or pledge that this standard revenue would be realised, although it may at least be fairly inferred that Parliament in requiring the novel scheme of 1921 did not contemplate provoking or encouraging developments which would make it more difficult of attainment. This standard merely represented the upward limits to profits to be aimed at by the Rates Tribunal in fixing charges; but it did set up the standard which Parliament considered the railway was entitled to earn if it possibly could. Further, in the judgment of the Rates Tribunal on their annual review in 1937 it was stated "that the legislature . . . regarded the realisation by the amalgamated company of its standard revenue to be in the public interest."

The standard revenue of the L M S Railway is fixed at £20.6 million, or a modest overall return of 4.8 per cent. on the capital receipts of the undertaking. The actual net revenue of the Company in 1937 was £14.4 million, or a deficiency compared with the standard of £6.2 million. In fact, the L M S has not yet succeeded in securing its standard because the Rates Tribunal have been unable to adjust the charges to make this possible.

The securing of this modest standard revenue is in the interest of the community as a whole, because it lies at the root of all progress in railway transport (with its comprehensive national service). The only way whereby it can be secured is by expanding traffic—by more passengers using the railway and by the business community despatching more freight traffic. The L M S Railway depends upon the public as much as the public depends upon the railway.

Progressive National Transport

LONDON MIDLAND AND SCOTTISH RAILWAY

The Story since 1923

To discover the manner in which the L.M.S. solved its post-grouping problems is, in fact, to describe the organisation evolved in the last fifteen years. First, however, we may draw together the conclusions suggested by the history of the company's constituent lines, for the sake of the light they throw on the task of creating one body out of many members. The absorbed undertakings had widely differing standards, and some were bound to take more from the pool of amalgamation benefits than they gave. But they included some of the finest systems in Britain or in the world. In their evolution, geography had played some part—by imposing "short haul" conditions, for example. But competition, rather than topography, had given the Midland its heavy gradients. And the nineteenth century development of Britain's specialised and localised industries had played the most important part of all.

The L.M.S. system penetrated to every part of the country (except the extreme south-west and south-east), but its network of lines was closest in a relatively few areas where industrial density was greatest—the Midlands, Lancashire, Yorkshire, and South-West Scotland. In fact, the map of the constituent lines had been largely drawn by 1870—and the table in the next column shows clearly that subsequent development was intensive and not extensive.

For fifty years before the merger, the major component companies had been improving their existing lines and running more traffic over them, rather than extending them. Even the Midland, which more than doubled its length of line after 1870, already had its own route to London by that year, and apart from its Carlisle extension, its subsequent increase was achieved mainly by taking over lines already in existence. In fact, before the end of the third quarter of the nineteenth century,

PROGRESS OF THREE CONSTITUENT LINES
(1870=100)

	Total Capital	Net Revenue	Length of Line	No. of Passengers	Tonnage of Goods
LONDON AND NORTH WESTERN					
1850	54	29	55	NA	NA
1860	66	35	62	42	42
1870	100	100	100	100	100
1913	227	171	137	305	300
MIDLAND					
1850	46	34	NA	NA	*
1860	56	60	NA	NA	*
1870	100	100	100	100	*
1913	543	318	215	624	*
LANCASHIRE AND YORKSHIRE					
1850	50	29	63	NA	NA
1860	79	81	85	NA	NA
1870	100	100	100	100	100
1913	296	181	140	290	297

NA = Not available. * 1850–70 figures not available. Tonnage in 1913 was 242 per cent. of 1880 figure.

Britain's railway routes were almost as well established as her national drainage system. Their channels might be widened, but their direction was almost unchangeable. And it had been determined by the characteristic forces of the era of Britain's commercial supremacy, when competition was free, international trade was freer than ever before or since, and when increasing wealth and population were centred mainly in the north.

The L.M.S. came into its inheritance in a period of transition—of economic nationalism and depressed export industries, of increased costs and a higher wage bill. In 1923, the internal combustion engine had raised the highway road from the humble rôle of a feeder to that of a formidable competitor for the cream of railway traffic. Against that background the measures taken to solve the problem of unifications must be viewed.

Problems of Organisation

The first problem to be faced was one of organisation—a matter of extreme difficulty in view of the wide variance in the traditions, practices and outlook of the larger constituent companies. In such a problem the interplay of human personality is always a major factor. One by one the chief officers of the constituent railways retired, and the appointment, in 1926, of Sir Josiah Stamp to the London Midland and Scottish (of which he became President and later Chairman) may be regarded as the landmark of the new organisation. Few questioned then, or question now, the desirability of having as the executive head of so vast a concern one who, with his detached viewpoint, could regard any differences of opinion or allegiance in completely unbiased perspective.

The system of organisation designed for the London Midland and Scottish is unique in the history of railways, though at least one American system approximated to it. Its outstanding characteristic was the creation of an executive committee consisting of the President, Vice-Presidents and certain other officers. Another unusual feature (which came later) was the combination of the operating and commercial departments under one Vice-President (who, in fact, had received his training as a mechanical engineer). On the whole, the organisation throughout the system has adhered more to Midland standards than to those of the other constituent lines, and the degree of centralisation is greater than on other British railway.

To-day, the operating work is organised divisionally from Crewe, Derby, Manchester and Glasgow, under the direction of a Chief Operating Manager in London. The Midland system of control has thus been extended to the whole system. Commercial work, which is also controlled from London (by a

MARSHALLING SIDINGS **TOTON, near Trent**

dynamic Chief Commercial Manager), functions through district goods and passenger managers situated in the larger cities. Another noteworthy Midland feature which has been retained is the placing of locomotive running control under the Operating Manager—an arrangement which leaves the Chief Mechanical Engineer free to concentrate on design and workshop problems. For geographical reasons it was found desirable to appoint a Scotsman of long commercial railway experience as Chief Officer for Scotland.

Economies after Amalgamation

That far-reaching economies have been achieved since amalgamation is beyond dispute. A necessarily brief and cursory examination will serve to show the main directions in which they have been secured. In the matter of power units, the present standard designs of the London Midland and Scottish date from the appointment in 1931 of a Chief Mechanical Engineer trained at Swindon. During the last fifteen years as a whole, a virtual revolution has been effected with the construction of about 3,500 new locomotives. Although many pre-1923 locomotive types (mostly of Midland design) are still regarded as standard, there has been a wholesale slaughter of locomotives of the constituent railways, especially those of the smaller companies. By the close of 1938 it is probable that no locomotives of the North Staffordshire, the Glasgow and South Western or the Furness Railways will still be in active service. A similar fate has all but overcome the whole of the London and Nortn Western and the Lancashire and Yorkshire passenger express engines. Withdrawals of Lancashire and Yorkshire goods engines and of many Highland and Caledonian types have been very heavy, and hundreds of the older Midland locomotives have gone to the scrap heap. At the time of amalgamation there were no fewer than 393 London Midland and Scottish locomotive types; by 1938 this number had been drastically reduced to about 220, and this is now in course of being reduced further to 136.

Standardisation increases the efficiency of construction and repair shops, for it enables the time necessary for repairs to be reduced from weeks to days. Since 1923, the London Midland and Scottish locomotive stock has fallen by over 2,500 units. The number of units under or awaiting repair at the end of 1937 was but one-fifth the number in 1923, but the train mileage was considerably greater, and the average speed of passenger trains had increased; while coal consumption between 1923 and 1937 had fallen by several pounds per locomotive mile, and lubricating oil consumption had been progressively reduced. Expenditure per train mile had fallen, the average wagon load had increased and the number of engine miles per day had risen from well under 100 in 1923 to nearly 120 in 1937.

Limitations of Managerial Control

It is a routine task of railway management to watch the trend of operating statistics and to allocate capital and revenue expenditure so as to assist them. But certain factors are largely outside managerial control. For instance, if the proportionate tonnage of coal, minerals and other heavy traffics decreases, the average wagon load will fall, even though the actual loading per wagon may be improved. The loss of short distance traffic will increase the average haul, but with a tapering rate structure the average receipt per ton mile will fall, other things being equal. Abstraction of the higher valued traffics by road competition will bring about a lower receipt per ton mile. In all these cases, a railway can do little except pursue an energetic commercial policy and endeavour to obtain reasonably competitive conditions—a fair field and no favour. Usually, any improvement in service, such as the increased frequency or higher speed of trains, creates added expense. In passenger traffic it may mean more empty seats, the costly easing of curves and heavier fuel consumption. In freight traffic it may require a lighter train and the fitting of air brakes to a large number of wagons. Nevertheless, within the limits of operating control, the L.M.S. has achieved much. Expenditure on signalling has proved a fruitful source of financial saving. Few railways have given equally detailed attention to the scientific layout of locomotive running depots. It has now only twenty-nine motive power depots, the remainder being merely garages and dormy sheds (to use the terminology of road transport). Heavy repairs are to-day concentrated on the workshops. Goods station working has proved another fertile field for scientific analysis.

Efforts to reduce the dead weight load of rolling stock have been carried far by the London Midland and Scottish. In this connection, light alloys and the use of welding have played a useful part. The company's research staff have found productive fields of activity in water softening (to lengthen the life of locomotive boilers), in quick-drying paints (to cut down workshop time), and in anti-corrosion compounds. The development of the container system—the company has now 8,000 containers—owed much to London Midland and Scottish energy. At Derby, valuable pioneering work for the railway world was done in developing the progressive system of rolling stock construction and repairs, which has spread in major or minor degree to all the world's more important railways. Amongst the latest developments are the design of a shock-absorbing wagon and the decision, in co-operation with the London and North Eastern Railway, to set up a locomotive testing station at Rugby.

In the sphere of staff matters, the inauguration of a Staff College at Derby has been a unique event in British railway history. "Quota" and "On Time" Leagues, based on the football league tables, have stimulated the staff to obtain new traffic and punctuality records. A railway, above all things, is a human machine. However excellent its technical equipment, omission to consider the implications of this fact will entail loss and wastage.

Financial Results

The financial experience of the L.M.S. since the war, in common with all other British railways, has been a matter of pull-devil-pull-baker, with road competition and export trade depression in the Mephistophelean rôle, and the economics of amalgamation *plus* good management in the opposite part. The main outlines of the story, for certain key years, are given in Table V (on page 15), and the following figures will serve as an epitome.

1924 = 100

	1929	1932	1937
Total receipts	95	75	87
Total expenditure	95	80	88
Net revenue	98	57	82
No. of passengers	86	76	85
Passenger receipts	87	73	82
Tonnage of goods	94	74	88
Goods receipts	97	75	88

For some years after amalgamation, drafts were made, in aid of ordinary dividends, on sums received from the Government in respect of the war-time period of control, but for the last decade payments to stockholders have been strictly proportionate to net earnings. The L.M.S. ordinary dividend, which was as high as 7 per cent. in 1924, was no more than 4½ per cent. in the "good" year 1929. During the succeeding depression it fell to *nil*, and full dividends were not earned and paid even on the company's junior preference stock. In 1937, another peak year for British industry in general, the ordinary dividend was only 1½ per cent. Equity stockholders, it is clear, have fared worse than railway users and railway workers since the war.

Post-War Developments

Attention may be drawn to certain significant features of the last few years. It will be seen, by reference to Table V, that although large capital sums have been spent annually, total capital has remained comparatively stable. In fact, new capital expenditure has been to a large extent offset by the writing off of unremunerative assets and the sale of facilities no longer required, or has been saved by greater efficiency. As examples, one might quote the reduction effected in locomotive stock, the reduction in the number of steamers required to maintain services on the Irish Sea, the closing of workshops, etc. The industrial troubles of 1926, the year of the coal stoppage and the General Strike, left a mark on British railway finance which will never be wholly eradicated. The reliance of the railways on British coal, at that period, proved a serious weakness, seeing that their road competitors used imported oil. Much of the traffic lost to the roads in 1926 has never been recaptured. Meanwhile, the London Midland and Scottish has felt the full brunt of unemployment in several of its areas—Lancashire, Barrow and West Cumberland, Clydeside, Belfast and South Wales.

The interlocking of railway receipts between the four railways by pooling schemes, etc., increases the difficulty of comparing the incidence of unemployment in different areas on the fortunes of individual lines, but its results, from the railway point of view, have been beneficial. The same comment applies to the policy of large-scale railway investment in road transport enterprises, typified by the London Midland and Scottish holdings in the Birmingham and Midland, Crosville, Eastern National, North Western, Ribble, Trent, West Yorkshire and several other bus-operating companies in England, and in the Scottish Motor Traction and Alexander concerns north of the Border. On the cartage side, the London Midland and Scottish has over £500,000 invested in Carter Paterson and the Hay's Wharf Company, while its own road transport fleet numbers more than 3,000 motor vehicles.

The L.M.S. has given a good deal of attention to the development of its ancillary enterprises in recent years. Few steamship fleets have been more completely renewed since the war period, and very considerable savings have accrued as a consequence. Net receipts, which were only £20,000 in 1923, totalled £300,000 in 1937.

The working of the London Midland and Scottish docks, which showed serious deficits for many years (even in 1929), showed a profit of £35,000 in 1937. On the other hand, the company's hotels, restaurant cars, etc., in 1937 achieved only a net profit of £353,000, which was far below the results obtained in the first year of amalgamation, and that despite heavy expenditure on improvements, including complete reconstruction of the company's hotel at Leeds, which is now among the leading establishments of its kind in the country. Finally, the London Midland and Scottish has taken a prominent part in the organisation of railway air services, but the financial results have been dismal. The net loss during the last two years has been £60,000. Whether this stake in the future of civil aviation will prove really remunerative the future alone will show.

Famous Men

BEFORE concluding this survey of times past and present by a brief glance at the immediate future, we may pause, for a moment, to praise famous men. First among the builders of the L.M.S., as it exists to-day, was George Stephenson, the father of railways, to whose energy were due the construction of the Liverpool and Manchester Railway and the decision to use steam traction on it. His victory over Chat Moss, his powerful advocacy of railway schemes before Parliamentary Committees, his realisation of the need for a standard gauge, his foresight in perceiving the railway's potential role in Britain's social and commercial development — all these bring honour to his name among railwaymen of all generations. The work of his son was hardly less important. Many memorials still remind the present generation of Robert Stephenson, notably the Menai Straits Tubular Bridge. The son was largely responsible for the locomotive power of the early lines, while the father concentrated upon new railway schemes. To Captain Huish, one of the greatest of railway diplomats, the early London and North Western Railway owed much; and also to George Carr Glynn, its first chairman. Glynn was a member of the banking firm, which even to-day is closely linked with the London Midland and Scottish, and to him the origin of the Railway Clearing House, based on the bankers' clearing scheme, is popularly ascribed. Sir Richard Moon, chairman in the Jubilee year, was another outstanding London and North Western figure. Sir George Findlay, Chief Goods Manager at thirty-five, and for long General Manager (the author, incidentally, of the best text-book of the time on railway management), steered the London and North Western through many difficult years in the 'eighties and 'nineties. Other North Western names of repute include Locke, Trevithick, Cawkwell, Webb, the somewhat eccentric mechanical engineer, and Turnbull.

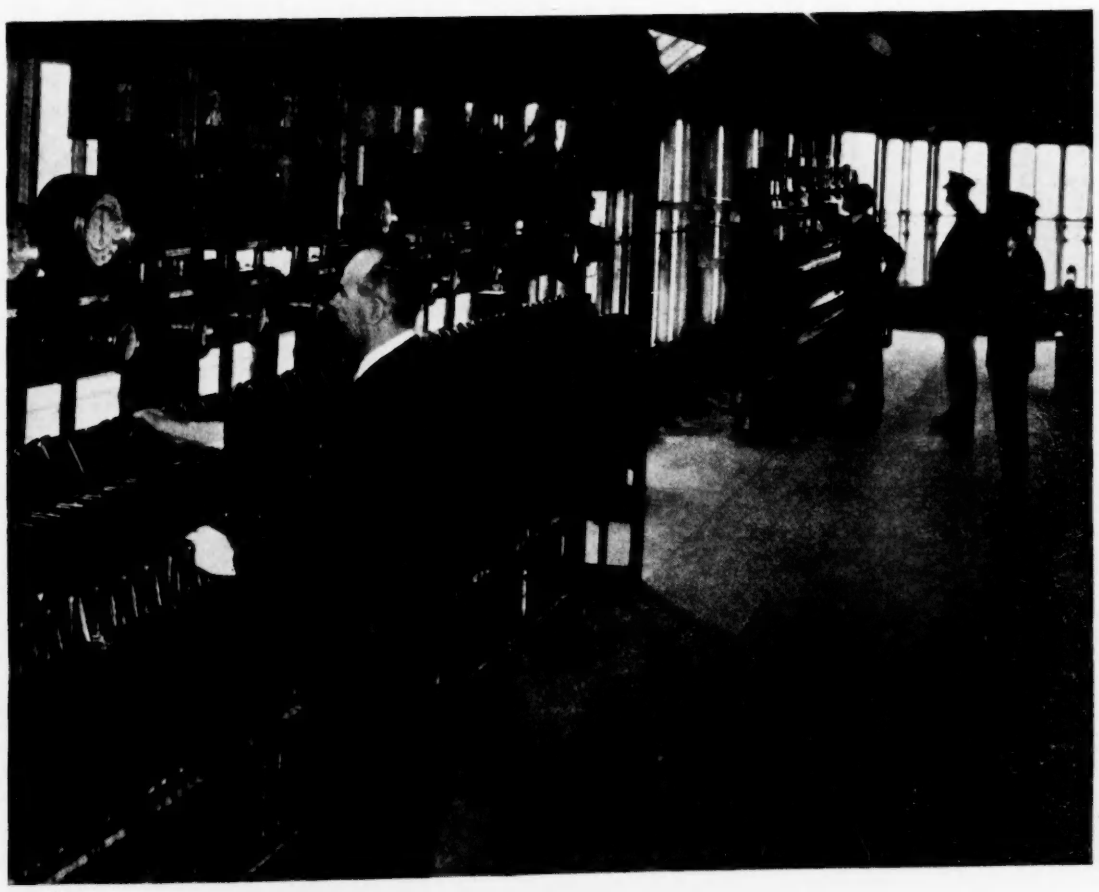
Midland Personalities

George Hudson, the railway king, set the Midland squarely on its expansive way; but the mainspring of its energies for many critical years was Sir James Allport, who joined the company in 1839, and, after a brief interval, returned as General Manager in 1853. To him the third-class passenger owes much. On his death in 1892 the Midland had attained maturity, and was largely the same system as in 1922. The name of Paget is reverenced by Midland men. Sir Ernest Paget was chairman from 1891 for over twenty years. The late Sir Cecil Paget, originator of the Midland control system, was a romantic figure in the twentieth-century railway world. To few men is it given to be an expert linguist, a great war-time administrator, a perfect chef, and a locomotive engineer of originality, with a flair for the solution of railway operating problems.

The L.M.S. is still fortunate in being able to draw on the advice, as a member of its board, of Sir Guy Granet, successively General Manager and Chairman of the Midland and Chairman of the L.M.S. His accumulated experience served the amalgamated organisation in good stead during its early years. During the last decade its path has been guided, with consummate ability, by a foremost British statistician and economist of his day—Sir Josiah Stamp, whose elevation to the peerage has recently been announced. The progress made by the L.M.S., in its multitudinous spheres of activity, refutes the argument that railway management should be separated from other activities of national life. The company and its constituents have been well served by many men who have played a distinguished part on the broader national stage, in the hundred years since *The Times* first announced that mails were to be despatched by the London and Birmingham Railway for Holyhead, Manchester, Liverpool and Carlisle.

INSIDE A MODERN SIGNAL BOX

Crewe North Junction



A Statistical Summary

The following tables, compiled from records treasured at Euston, afford a picture of the development of the complex and ramified railway system which, since 1923, has been known as the London Midland and Scottish. Tables I to IV show the growth of capital, revenue, mileage and traffic of the four largest constituent concerns at decennial intervals since 1850, when the amalgamations, characteristic of the 'thirties and 'forties, had already created the names which were to be familiar to railway travellers for another seventy years. The figures show that between 1850 and 1870 the great companies were rapidly extending their territory and scope, but that after 1870 their new capital outlay was devoted, with some few exceptions, mainly to increasing the traffic and earning power of their existing lines. Table V summarises the experience of the L.M.S. itself, under the same headings, in certain specially significant years since amalgamation. The remaining tables set out the rates of ordinary dividend paid on each line for every calendar year since the 'forties.

TABLE I: LONDON AND NORTH-WESTERN RAILWAY COMPANY

	1850	1860	1870	1880	1890	1900	1910	1913	1921
Total Capital (incl. debs. & loans) £	29,616,316	36,408,434	54,981,397	92,456,537	104,038,347	119,233,485	125,041,616	124,886,466	127,885,309
Net Revenue ..... £	1,084,294	1,285,976	3,711,016	4,866,834	5,362,415	5,321,287	6,002,035	6,334,595	6,771,823
Ordinary Dividend ..... %	5¼	5⅛	6⅝	7⅝	7¼	6¼	6⅝	7	7½
Total Expenditure..... £	1,312,594	3,135,134	3,293,878	4,960,188	6,228,939	8,576,216	9,960,335	11,322,164	32,837,186
Total Receipts ..... £	2,396,888	4,421,110	7,004,894	9,827,022	11,591,354	13,897,503	15,962,370	17,656,759	39,609,010
Proportion of Expendr. to Receipts %	*55*	*71*	*47*	*50*	*54*	*62*	*62*	*64*	*83*
Length of Line ..... Miles	832	929	1,506	1,736	1,877	1,937	1,966	2,063	2,066
No. of Passengers conveyed †	...	12,743,112	30,353,037	48,299,213	60,544,631	82,069,743	75,731,329	92,540,230	83,458,800*
Total Receipts from Passenger Train Traffic £	1,403,767	2,077,150	2,942,285	3,733,652	4,718,179	6,001,971	6,605,892	7,213,998	...
Goods Train Traffic ..... Tons	...	8,091,396	19,270,640	32,966,526	37,358,724	44,465,277	53,894,503	57,656,257	22,922,509*
Receipts from Goods Train Traffic £	913,702	2,145,134	3,973,194	5,945,041	6,666,845	7,637,272	8,843,174	8,864,578	...
No. of Loaded Train Miles — Passenger	...	7,208,942	12,447,546	16,838,085	21,611,499	26,624,498	30,225,210	30,090,275	23,264,716
Goods ...	...	7,216,349	12,590,031	18,266,724	20,287,911	22,598,619	17,237,324	18,098,313	12,727,874
Total ...	...	14,425,291	25,037,577	35,104,809	41,899,410	49,223,117	47,462,534	48,188,588	35,992,590
Receipts per Train Mile — Passenger ..... d.	...	69·15	56·73	53·22	52·40	54·10	52·45	57·54	...
Goods ..... d.	...	71·34	75·74	78·11	78·87	81·11	123·13	117·55	...
Passr. & Goods d.	...	70·25	66·29	66·17	65·21	66·50	78·12	80·08	...

* Originating. † Excluding season tickets.

TABLE II: MIDLAND RAILWAY COMPANY

	1850	1860	1870	1880	1890	1900	1910	1913	1922
Total Capital (incl. debs. & loans) £	17,303,569	21,109,259	37,575,667	67,807,681	90,534,132	173,965,072	193,213,263	203,857,713	204,140,713
Net Revenue ..... £	679,401	1,199,324	2,005,064	3,343,147	4,015,250	4,351,095	5,009,041	6,362,738	6,894,160
Ordinary Dividend ..... %	£2 1s.	6¾	6½	6⅛	6¼	2¾ on defd.	3½ on defd.	4¼ on defd.	6 on defd.
Total Expenditure ..... £	522,106	934,116	1,828,674	3,428,237	4,711,423	6,977,823	8,433,249	10,174,037	23,114,278
Total Receipts ..... £	1,201,507	2,133,440	3,833,738	6,771,384	8,726,673	11,328,918	13,442,290	16,536,775	30,008,439
Proportion of Expendr. to Receipts %	*43*	*44*	*48*	*51*	*54*	*62*	*63*	*61*	*77*
Length of Line ..... Miles	...	...	958	1,365	1,382	1,437	1,531	2,063	2,169
No. of Passengers conveyed †	...	..	16,355,580	28,222,266	38,473,619	51,932,911	50,850,368	101,985,643	92,052,317
Total Receipts from Passenger Train Traffic £	620,140	756,317	1,269,956	2,077,602	2,653,824	3,498,452	4,078,973	4,900,200	9,164,073
Goods Train Traffic ..... Tons	...	...	...	22,810,899	30,095,429	40,937,111	50,479,499	55,068,865	48,845,011
Receipts from Goods Train Traffic £	540,856	1,340,721	2,495,766	4,626,467	5,988,693	7,600,352	8,419,031	9,107,365	16,177,575
No. of Loaded Train Miles — Passenger	...	3,388,730	7,246,567	11,582,045	15,404,090	19,392,064	22,585,001	23,563,627	20,478,209
Goods ...	...	5,173,831	10 192,347	17,976,413	23,659,746	28,626,043	26,305,595	21,926,672	18,634,339
Total ...	...	8,562,561	17,438,914	29,558,458	39,063,836	48,018,107	48,890,596	45,490,299	39,112,548
Receipts per Train Mile — Passenger ..... d.	...	53·56	42·06	43·05	41·35	43·30	43·35	49·91	107·40
Goods ..... d.	...	62·19	58·77	61·77	60·75	63·72	76·81	99·69	208·36
Passr. & Goods d.	...	58·78	51·83	54·43	53·10	55·47	61·35	73·90	155·50

† Excluding season tickets.

TABLE III: LANCASHIRE AND YORKSHIRE RAILWAY COMPANY

	1850	1860	1870	1880	1890	1900	1910	1913	1921
Total Capital (incl. debs. & loans) £	11,926,494	18,831,230	23,807,892	34,405,588	46,722,036	63,033,111	70,348,806	70,473,137	72,231,930
Net Revenue ..... £	413,014	1,162,107	1,435,069	1,630,875	1,918,280	2,168,031	2,465,407	2,602,111	2,630,263
Ordinary Dividend ..... %	Capital divided.	5¾	7⅝	5⅜	4¼	4⅜	4⅜	4½	4½
Total Expenditure..... £	328,498	791,807	1,222,797	1,944,957	2,450,187	3,276,578	4,078,358	4,804,757	13,989,130
Total Receipts ..... £	741,512	1,953,914	2,657,866	3,575,832	4,368,467	5,444,609	6,543,765	7,406,868	16,619,393
Proportion of Expendr. to Receipts %	*44*	*40*	*46*	*54*	*56*	*60*	*62*	*65*	*84*
Length of Line ..... Miles	268	362	428	485	522	556	589	600	601
No. of Passengers conveyed †	...	...	23,828,046	37,157,142	45,558,864	64,665,969	58,224,379	69,170,122	71,783,136*
Total Receipts from Passenger Train Traffic £	313,708	744,657	1,008,372	1,356,820	1,741,308	2,299,381	2,543,037	2,877,576	...
Goods Train Traffic	...	...	8,993,503	13,722,137	17,655,250	21,795,887	25,959,484	26,724,850	9,516,102*
Receipts from Goods Train Traffic £	388,043	1,149,934	1,528,607	2,171,925	2,518,190	2,983,616	3,374,070	3,610,222	...
No. of Loaded Train Miles — Passenger	1,400,739	...	5,233,347	6,534,050	9,808,055	12,322,450	12,820,047	12,433,978	11,056,813
Goods ...	1,616,173	...	4,371,092	5,287,303	6,412,816	6,548,641	5,129,238	5,155,407	3,999,314
Total ...	3,016,912	...	9,604,439	11,821,353	16,220,901	18,871,091	17,949,285	17,589,385	15,056,127
Receipts per Train Mile — Passenger ..... d.	53·75	...	46·24	49·84	42·61	44·78	47·61	55·54	...
Goods ..... d.	57·62	...	83·93	98·59	94·24	109·35	157·87	168·07	...
Passr. & Goods d.	55·83	...	63·40	71·64	63·02	67·19	79·12	88·52	...

* Originating. † Excluding season tickets.

TABLE IV: CALEDONIAN RAILWAY COMPANY

	1850	1860	1870	1880	1890	1900	1910	1913	1922
Total Capital (incl. deb. & loans) £		7,119,278	22,695,821	35,454,486	41,332,385	61,458,877	70,393,311	70,910,471	72,322,102
Net Revenue ..... £		427,400	1,049,360	1,381,669	1,585,685	1,946,215	2,183,216	2,316,514	2,479,623
Ordinary Dividend ..... %		4 5/8	3 13/20	3 3/8	5	4 1/2	3 1/8	3 1/2	5 3/8
Total Expenditure ..... £		362,894	995,462	1,421,708	1,706,286	2,540,506	2,812,315	3,293,123	7,384,737
Total Receipts..... £		790,294	2,044,822	2,803,377	3,291,971	4,486,721	4,995,531	5,609,638	9,864,360
Proportion of Expendr. to Receipts %		*45*	*49*	*51*	*52*	*57*	*56*	*59*	*75*
Length of Line ..... Miles		229	662	878	875	939	1,074	1,117	1,220
No. of Passengers conveyed †									
Total Receipts from Passenger Train Traffic £	No Accounts	2,479,242	9,321,111	15,791,140	24,297,552	45,059,545	32,420,627	47,505,472	32,457,703
		257,027	675,454	949,757	1,227,092	1,732,582	1,895,788	2,094,440	3,733,283
Goods Train Traffic ..... Tons		...	...	13,603,190	16,305,336	27,401,157	27,051,965	28,303,062	21,698,798
Receipts from Goods Train Traffic £		508,390	2,044,822	1,720,663	1,910,538	2,527,908	2,653,585	2,975,466	5,172,000
No. of Loaded Train Miles { Passenger		...	4,078,735	5,047,529	6,926,813	9,436,678	9,790,946	10,185,622	9,170,275
Goods ...		...	5,472,408	6,042,822	6,532,531	7,755,726	6,562,714	6,219,499	5,611,160
Total.....		...	9,551,143	11,090,351	13,459,347	17,192,404	16,353,660	16,405,121	14,781,435
Receipts per Train Mile { Passenger ..... d.		...	39·74	45·16	42·52	44·06	46·47	49·35	97·70
Goods ..... d.		...	89·68	68·34	70·19	78·23	97·04	114·82	221·22
Passr. & Goods d.		...	68·35	57·79	55·95	59·47	66·76	74·17	144·59

† Excluding season tickets.

TABLE V: LONDON MIDLAND AND SCOTTISH RAILWAY COMPANY

	1924	1929	1932	1934	1936	1937
Total Capital (incl. deb. & loans) ... £	398,929,175	412,278,857	413,778,857	413,778,857	413,778,857	413,778,857
Net Revenue ..... £	17,456,329	17,175,283	9,904,823	11,921,236	14,048,176	14,356,276
Ordinary Dividend ..... %	7	4 1/2	Nil	Nil	1 1/4	1 1/2
Total Expenditure ..... £	70,711,974	66,906,662	56,318,696	56,924,563	59,159,138	61,989,608
Total Receipts ..... £	88,168,303	84,081,945	66,223,519	68,845,798	73,207,314	76,345,884
Proportion of Expendr. to Receipts %	*80*	*80*	*85*	*83*	*81*	*81*
Length of Line ..... Miles	6,962	6,957	6,946	6,923	6,895	6,870
No. of Passengers conveyed *	538,441,862	461,283,058	407,500,929	432,700,923	450,530,770	459,546,703
Total Receipts from Passenger Train Traffic £	33,005,217	28,722,807	24,199,980	24,739,965	25,963,191	26,994,311
Goods Train Traffic ..... Tons	158,468,649	149,332,591	116,854,163	124,408,581	132,423,807	139,098,041
Receipts from Goods Train Traffic £	45,144,923	43,816,074	33,733,242	35,235,596	37,850,108	39,573,155
No. of Loaded Train Miles { Passenger ...	85,364,473	89,305,844	87,801,738	93,531,035	97,611,069	99,212,920
Goods	53,894,804	53,125,253	46,118,060	48,374,927	50,873,631	52,041,900
Total	139,259,277	142,431,097	133,919,798	141,905,962	148,484,700	151,254,820
Receipts per Train Mile { Passenger ..... d.	92·79	77·19	66·15	63·48	63·84	65·30
Goods ..... d.	201·04	197·94	175·55	174·81	178·56	182·50
Passr. & Goods d.	134·68	122·23	103·82	101·43	103·14	105·62

* Including season tickets.

TABLE VI. DIVIDENDS ON ORDINARY CAPITAL

Year	London and North Western	Midland	Lancashire and Yorkshire	Caledonian
	%	%	%	%
1845	...	6 13/20	...	...
1846	10	7	...	...
1847	8 1/2	7	7	...
1848	7	5 1/2	5 1/2	...
1849	6 1/4	2 3/4	3 1/2	1 1/2
1850	5 1/4	2 1/20	2	Nil
1851	5 3/4	2 5/8	2 1/2	Nil
1852	5 1/4	3 1/8	3	11/20
1853	5	3 1/4	3 3/8	2 1/4
1854	5	3 5/8	3 3/4	3
1855	5	3 5/8	4 1/8	3
1856	5 1/2	4 5/8	4 3/4	1 1/2
1857	5	4 5/8	4 5/8	3 1/2
1858	4	4 7/8	3 7/8	4 1/4
1859	4 3/4	5 5/8	4 3/4	3 7/8
1860	5 1/8	6 3/4	5 3/4	4 5/8
1861	4 1/4	6 5/8	5 1/4	5 1/4
1862	4 5/8	6	3 7/8	5 1/4
1863	5 1/8	6 3/8	4 1/2	5 5/8
1864	6 3/8	7 3/8	5 7/8	6 3/8
1865	6 5/8	6 3/4	5 7/8	8
1866	6 3/8	6 1/8	6 3/4	7 3/8
1867	6	5 1/2	6 1/2	5 7/8
1868	6	5 3/8	6 3/4	2
1869	6 1/4	6 1/8	6 3/4	3 5/8
1870	6 5/8	6 1/2	7 3/8	3 13/20
1871	7 3/4	7	7 7/8	4 1/2
1872	7 3/4	7 1/4	8 3/8	5 3/8
1873	7 1/2	6 1/2	7 1/8	3 1/2
1874	6 7/8	6	6 1/4	3 1/8
1875	6 3/4	6	6	5 7/8
1876	6 5/8	5 3/8	5 7/8	6 3/4
1877	6 5/8	5 3/8	6 1/8	6 5/8
1878	6 1/2	5 3/8	5 3/8	5 1/4
1879	6 1/2	5 5/8	4 5/8	3 3/8
1880	7 3/8	6 1/8	5 3/8	3 3/8
1881	7 1/4	5 7/8	5	3
1882	7 1/2	5 7/8	4 7/8	4 7/20
1883	7 1/2	5 7/8	4 5/8	4 1/2
1884	6 3/4	5 3/8	4 1/4	4 1/2
1885	6 1/2	5 1/8	3 1/4	4 5/8
1886	6 1/4	4 5/8	3 1/2	3 3/4
1887	6 1/2	4 3/4	4 1/4	3 5/8
1888	6 3/4	5 1/4	4 1/8	4 1/8
1889	7 3/8	6	4 1/2	5 1/8
1890	7 1/4	6 1/4	4 1/4	5
1891	7	6 3/8	3 7/8	3 7/8
1892	6 1/2	6	3 5/8	4 1/4
1893	5 3/8	3 7/8	3 1/8	4 1/8
1894	6 1/4	5 1/4	4	4 5/8
1895	6 3/8	5 1/8	4 1/2	3 7/8
1896	7 1/8	6	5 3/8	5 1/4
1897	7 1/8	5 7/8	5 1/8	5 1/8
1898	7 1/8	3 3/8 *	5 1/4	5
1899	7 1/8	3 3/8	5 1/4	4 7/8
1900	6 1/4	2 3/4	4 3/8	4 1/2
1901	5 1/2	2 1/8	3 3/4	3 5/8
1902	6	2 3/4	4	4 1/8
1903	5 7/8	2 3/4	3 3/8	4
1904	5 3/4	2 1/2	3 3/8	3 7/8
1905	6 1/8	2 5/8	3 3/4	3 7/8
1906	6 3/8	2 3/4	4 3/8	4
1907	6 3/8	2 7/8	4 3/8	3 1/2
1908	5 3/4	2 1/4	3 3/8	3
1909	5 7/8	2 5/8	3 7/8	3
1910	6 5/8	3 1/2	4 3/8	3 1/8
1911	6 7/8	3 7/8	4 5/8	3 3/8
1912	6 1/2	3 7/8	4 1/8	3 3/4
1913	7	4 1/4	4 1/2	3 1/2
1914	6	4	4 1/2	3 3/8
1915	6	4	4 1/2	3 3/8
1916	6	4	4 1/2	3 3/8
1917	6	4	4 1/2	3 1/2
1918	7	4 1/4	4 1/2	3 3/4
1919	7 1/2	4 3/4	4 1/2	3 3/4
1920	7 1/2	4 3/4	4 1/2	3 5/8
1921	7 1/2	4 3/4	4 1/2	3 1/2
1922	8 1/2	6	†	5 3/8

* From 1898, onwards, figures refer to deferred stock, after capital splitting.

† Amalgamated with London and North Western.

Present and Future Problems

IT is well that the servants of the L.M.S., high and low, lose nothing to-day by comparison with their most famous predecessors; for many major problems still face the company. The next few years should see the completion of a large programme of works financed under the Railways (Agreement) Act of 1935, at a gilt-edged rate of interest. These works include the complete reconstruction of the Euston terminus, and extensive improvements at Blackpool, Carnforth, Coventry and other towns. A steady flow of new capital expenditure will be required by other developments, notably the modernisation of engine sheds and signalling equipment and the probable installation of automatic train control over the higher speed main lines. Bottle-necks still remain on some of the busiest sections—for example, between Shilton and Attleborough and between Winsford and Hartford. And bridge reconstruction is far from being complete.

On the other hand, heavy capital expenditure is unlikely, after 1938, on rolling stock, workshops, steamers, hotels and docks. Much has already been accomplished in these directions; and ordinary maintenance and replacements will continue to be financed from current revenue, with the judicious use of renewal funds with which the London Midland and Scottish is adequately supplied. Throughout the years of depression the company carried out its annual quota of renewals, and, incidentally, benefited from the low ruling level of costs. If anything, the L.M.S. is ahead of its renewal programmes for way and works and rolling stock. For example, it is already taking electrically lit rolling stock out of service—a position which no other railway has yet attained. Even so, at the end of 1937 its renewal funds were only about £3,000,000 lower than the £12,000,000 of the pre-depression year 1929, and its general reserve and contingency funds, together, have been almost unchanged. On balance, an annual capital expenditure of about £1,000,000 may be looked for after 1938 (exclusive of the 1935-40 programme); but to some extent this will be offset by credits on sales and assets replaced. Nevertheless, the last annual accounts show a total capital expenditure, in excess of capital receipts, of nearly £27,000,000; and sooner or later the question of "funding" some of this large amount will doubtless demand consideration.

Revenue Prospects

So much for the capital position. On the receipts side, in no year has the London Midland and Scottish, so far, attained the standard revenue contemplated under the Act of 1921, and in most years it has hardly approached that figure. Last year, when British industry as a whole was more active than ever before, gross receipts on the London Midland and Scottish Railway were 9 per cent. lower than in 1929, though the management had succeeded in reducing railway expenditure, in the meantime, by approximately 8 per cent. Prospects for 1938 have grown gloomier since March, owing to European political unsettlement and British trade recession. As a partial set-off, however, the company may benefit from expansion of Anglo-Irish trade and the speeding up of national re-armament.

To state that the prosperity of a railway is bound up with the prosperity of the area it serves is platitudinous and less than the truth. Irrespective of all pooling arrangements, the financial position of the London Midland and Scottish is a reflection of the state of trade throughout the country. The Middlesbrough blast-furnace worker is not served by the L.M.S., but is partial to a day's outing to Blackpool to see "t'illuminations." Barrow, Birkenhead and Clydeside build ships, and shipbuilding orders depend largely on the level of freights. L.M.S. hotels receive useful revenue from American and other visitors whose holiday plans depend on economic conditions in their own countries. And the immediate outlook is less favourable than it appeared a few months ago. Even if this year's receipts, with the help of the increased charges inaugurated last October, equal the 1937 totals, costs of materials are likely to exceed those of the preceding year. And wages, irrespective of any new demands now arising, will unquestionably be higher owing to the wage agreement reached in 1937 and applicable for a full twelve months in the current year.

Future Possibilities

What further savings remain to be obtained after fifteen years of ceaseless endeavour? One must admit that the fruitful spring must soon be running dry. The ratio of railway expenditure to receipts varied only infinitesimally between 1936 and 1937, such movement as there was being adverse. Present prospects seem to envisage a rise in the ratio from 79.7 per cent. to over 80 per cent. this year. The annual railway expenditure of the L.M.S. has fallen by £10,500,000 since amalgamation, and by £4,500,000 since 1929. The fact that it has risen, however, by £4,400,000 since 1932 suggests that amalgamation economies have lately been of minor importance. Actually, it has never been practicable to distinguish amalgamation economies from those due to technical progress. For example, more adequate lubricating apparatus and improved locomotive design produce fuel economy and a longer annual engine mileage; and such economies will continue, year after year. Developments like the installation of automatic signals, a modern hotel, mechanical carriage cleaning, spray painting, all-electric signal cabins, a new steamer, a reconstructed station—like that obtained by the combination of Leeds (Wellington) and Leeds (New) into Leeds City—all these reduce the demand for labour, and labour reputedly accounts for over 60 per cent. of railway working costs.

This aspect is the more important since labour costs, in theory variable, have since the war been relatively rigid. All the British railways have complex agreements with their staffs for a guaranteed week and a guaranteed day. Their inability to lay-off permanent staff temporarily has been a social advantage, but a stockholder's disability. Against a fall of 12 per cent. in receipts in nine years, the maximum reduction in staff wages and salaries rates was 5 per cent. During the same period, the number of L.M.S. workers was reduced by 49,000, mainly as a result of amalgamation, but by 1937 it had increased by 15,000 above the minimum figure of 1933.

For the rest, it is unlikely that road competition will become more acute. The rate of increase in the number of private motor cars is falling off. Legislation has begun to stabilise competition from the public haulier; and pending measures may help to usher in a fairer degree of competition.

The conclusion must be that finality in the problems of the L.M.S. has not been reached, and probably never will be. But the day, it may be hoped, is far distant when the Empire's largest commercial undertaking will need to rely on Government aid or endeavour—a position to which a large number of the world's railways outside Great Britain have already descended. The management of nearly a quarter of a million of staff, scattered on land from Thurso to Swansea and Tilbury, can never be a sinecure. And immediate dividend prospects turn on factors beyond administrative control. But the foundations of future earnings—*esprit de corps*, facilities and motive power—have been soundly reconstructed since 1923. The rest depends on the future of British industry, trade and finance—on all that national well-being means in a powerful, wealthy and highly organised community.

TABLE VII. DIVIDENDS ON ORDINARY CAPITAL

(London Midland and Scottish Railway)

Year	Rate	Year	Rate	Year	Rate	Year	Rate
	%		%		%		%
1923	7	1927	4¾	1931	¼	1935	Nil
1924	7	1928	3½	1932	Nil	1936	¼
1925	6	1929	4½	1933	Nil	1937	1½
1926	3	1930	2	1934	Nil		

Printed in Great Britain by EYRE AND SPOTTISWOODE LIMITED, His Majesty's Printers, East Harding Street, London, E.C.4. Published by THE ECONOMIST NEWSPAPER, LTD., at 8 Bouverie St., Fleet St., E.C.4.—Saturday, July 2, 1938. Entered as Second Class Mail Matter at the New York, N.Y., Post Office.

1938	1930,	mpared s year	crease	4.								rth	ending , 1938	
														31,115 34,929 11,686
														77,731
														0,000
														0,850
														0,859
														8,581
														0,000
														8,591
														0,000
														0,000 0,000
														5,000 8,627
														1,527 0,000
														9,735
														8,809 2,543